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ABSTRACT

Results of a survey using a criterion referenced test of mathematics for a large sample of sixth and eleventh grade students throughout Texas are reported in detail. Details of the sampling design and of the test development are reported elsewhere. Results are reported in terms of the percent of students correctly answering three out of four items for each of 12 objectives at sixth grade and 11 objectives at eleventh grade. These results are reported for the state as a whole and separately for a number of categories, as follows: by 20 geographic regions; three ethnic groups (black, Mexican American, and other); sex; type of school district (urban, rural, etc); family economic status; per pupil expenditure in school districts; special characteristics of student programs; and home factors assumed to be related to educational achievement (language spoken in the home, reading materials, time watching television, homework, parents' education, and students' educational aspirations). Major findings are summarized. Appendices list essential mathematics objectives; percent of students mastering objectives by all category groups; copies of forms used to collect the data; and labels and definitions for categories used in classifying data. (CTM)

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MATHEMATICS

TEXAS ASSESSMENT OF ESSENTIAL OBJECTIVES

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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TEXAS ASSESSMENT PROJECT
Texas Education Agency, Austin, 1979

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Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964; Title IX of the Education Amendments of 1972; and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) non-discrimination in extracurricular activities and the use of school facilities;

(4) non-discriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, national origin, or sex;

(6) non-discriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act and/or Title IX of the Education Amendments of 1972 is found, the findings are reported to the Office for Civil Rights, Department of Health, Education and Welfare.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

FOREWORD

The State Board of Education has a long-standing interest in finding out how well Texas students are achieving the basic competencies necessary to function as adults in our society. The Sixty-fifth Texas Legislature expressed its interest in better information for educational planning and improvement, and provided resources to be used for this purpose. To carry out this directive, the Texas Education Agency has conducted a statewide assessment of student achievement in four basic student goal areas.

We are both gratified and grateful for the positive response we received from local school officials in carrying out this assessment. Every one of more than 2,200 school campuses requested to participate in the study agreed to do so, and their cheerful cooperation throughout the effort was of inestimable value to the success of the project. We take this as a sign that the local school districts of Texas share a keen professional interest in being accountable, both in terms of recognizing their successes and of taking appropriate actions to strengthen their programs where weaknesses are identified.

The findings in these reports provide important information about where Texas students are achieving well and where they are experiencing learning problems. But assessment is only the first step toward improvement. The rest of the task consists of finding the problems within and outside the school that underlie low student achievement, adapting or inventing more effective instructional practices to overcome these problems, marshalling the support and commitment of parents and communities in understanding and joining with educators in solving these problems, providing the resources necessary to bring about planned change, and putting these improved instructional practices into effect.

We at the Texas Education Agency call upon local school districts, teacher education institutions, regional education service centers, professional organizations, the Texas Legislature, and the citizens of Texas to join us in using this information to bring about improvements in learning opportunities for Texas students. It is only through concerted efforts of the entire educational community that we can continue to move toward excellence and provide the finest possible educational programs for the children and youth of Texas.

M. L. Brockette

M. L. Brockette
Commissioner of Education

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OVERVIEW

The Texas Assessment Project (TAP) was developed by the Texas Education Agency in cooperation with educators representing a variety of school districts and professional organizations. Designed to measure student achievement in reading, mathematics, writing (composition), and citizenship, the assessment was conducted in response to legal and policy directives from the Texas Legislature and the State Board of Education. These directives are contained in the Texas Education Code, Goals for Public School Education in Texas, Priorities of the State Board of Education, Senate Concurrent Resolutions 29 and 30, and Senate Bill 1 of the Sixty-fifth Texas Legislature.

MEASUREMENT INSTRUMENTS

Three kinds of measures used in the study provide information from different perspectives:

- Norm-referenced Tests (NRT) of reading and mathematics, to compare performance of Texas students with students in a national norm group.
- Criterion-referenced Tests (CRT) of reading and mathematics, developed in Texas to determine degree of mastery of essential objectives already established for students in Texas schools.
- Test exercises (items) for citizenship and writing, developed by the National Assessment of Educational Progress (NAEP), to determine achievement of Texas students on specific items, and to compare their performance with national and regional results of previous NAEP assessments.

Reading and mathematics tests were administered to students in grades 6 and 11; writing and citizenship exercises were administered to 9-, 13-, and 17-year-olds.

ASSESSMENT DESIGN

Goal Areas	Measurement Instruments		
	NRT	CRT	NAEP
Reading	6th Grade	6th & 11th Grades	
Mathematics	6th Grade	6th & 11th Grades	
Writing			9-Year-Olds 13-Year-Olds 17-Year-Olds
Citizenship			9-Year-Olds 13-Year-Olds 17-Year-Olds

SAMPLE OF STUDENTS

The sampling pattern for the study was planned to represent student performance statewide and within each of the 20 regions served by an education service center. The sample was not designed to be representative of any school district, campus, or classroom.

The sampling plan was developed under a contract with Research Triangle Institute (RTI) of Raleigh-Durham, North Carolina and is patterned after a similar sampling design used by the National Assessment of Educational Progress project. It was designed to provide a balance of ages and grades, a proportionate distribution of ethnic groups, and a cross-section of different types of school districts. The sample of students tested in each region represents the total school population within that region.

A random sample of 113,307 students was selected to represent the total student population of 854,020 in the age and grade categories selected for testing.*

TEST ADMINISTRATION

Tests were given to students by specially trained test administrators both to reduce the burden on school personnel and to ensure uniform administration of the tests throughout the state. A contract to conduct the testing was awarded by the State Board of Education to Research Triangle Institute. In April and May of 1978, over 5,000 testing sessions were conducted in 2,234 elementary and secondary schools.

REPORTS

Findings of the Texas Assessment Project are published in a series of six reports:

- *Reading – Texas Assessment of Essential Objectives*
- *Mathematics – Texas Assessment of Essential Objectives*
- *Achievement in Reading and Mathematics – 6th Grade*
- *Writing – A Statewide Assessment in Texas*
- *Citizenship – A Statewide Assessment in Texas*
- *Summary Report – Texas Assessment Project*

Copies of the reports or additional information may be obtained from:

Texas Education Agency
Division of Educational Assessment
201 East 11th Street
Austin, Texas 78701

Telephone: (512) 475-2066

*For a complete description of the sample design, see the publication, *Sample Design for the Texas Assessment Project, Final Technical Report*, available from the Texas Education Agency.

BACKGROUND

Mathematics is generally recognized as one of the most important basic skills necessary for coping with life in an increasingly complex society. In 1975 the State Board of Education reemphasized the importance of students' acquiring basic mathematics competencies. The Board adopted as a long-range priority objective: "Consistent with the Goals for Public School Education in Texas, by 1980, students completing high school should demonstrate the attainment of the essential knowledge, skills, and competencies in . . . mathematics."

To identify such essential knowledge, skills, and competencies, the Texas Education Agency and the regional education service centers jointly hosted a series of meetings with lay citizens and educators. Basic objectives were selected as essential mathematics competencies which all students are expected to attain by the time they complete high school. Essential mid-point mathematics objectives were identified as progress checks at approximately the halfway point in schooling.

ESSENTIAL MATHEMATICS OBJECTIVES

Listed below are the mid-point and exit level objectives measured by the sixth and eleventh grade criterion-referenced tests in mathematics. These objectives were selected from lists of essential mathematics objectives established for Texas students for the mid-point and exit levels of schooling. Objectives to be measured by the criterion-referenced tests were chosen on the basis of their central significance to the curriculum. They are not proffered as a comprehensive coverage of the entire domain of mathematics, but should be viewed as selected important features of the total mathematics curriculum. A complete list of all the essential mathematics objectives appears in Appendix A, page 33.

Mid-point Level Objectives

- **Addition of Whole Numbers** – Add column of five numbers, limited to four-digit numbers with regrouping.
- **Multiplication of Fractions** – Demonstrate multiplication of fractions.
- **Interpret Place Value** – Demonstrate the ability to interpret place value (limited to five-digits numbers).
- **Recognize Numerals** – Read and write five-digit numerals (verbal or numeric form).
- **Multiplication of Whole Numbers** – Multiply numbers where regrouping is necessary (limited to three-digit numbers).
- **Subtraction of Whole Numbers** – Perform subtraction using four-digit numbers with regrouping.

- **Solve Problems Using Addition and Subtraction** – Perform estimations and solve problems involving addition and subtraction, using whole numbers, simple fractions, and decimals.

- **Use Reference Units** – Use reference units of weight/mass. length, area, volume, temperature, time, and money to estimate measure.

- **Division of Whole Numbers** – Divide numbers with/without remainders (limited to three digits).

- **Solve Problems Using Multiplication and Division** – Perform estimations and solve problems involving multiplication and division including whole numbers, simple fractions, and decimals.

- **Solve Problems Using Measures** – Solve problems using linear area, volume, weight/mass, money, time and temperature measures.

- **Addition and Subtraction of Fractions** – Add and subtract fractions having unlike denominators (limited to simple fractions).

Exit Level Objectives

- **Addition and Subtraction of Whole Numbers** – Use the addition facts through 10 + 10 in addition and subtraction processes.

- **Read and Interpret Information on Charts and Graphs** – Read and interpret mathematical information on a chart or graph such as circle, bar line, and picture graphs.

- **Multiplication and Division of Whole Numbers** – Use the multiplication facts through 10 x 10 in multiplication and division processes.

- **Count Various Combinations of Paper Money and Coins** – Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.

- **Solve Problems Using Measures** – Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.

- **Solve Problems Involving Whole Numbers** – Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.

- **Addition, Subtraction, Multiplication and Division of Decimal Numbers** – Add, subtract, multiply, and divide decimal numbers to three places.

- **Use Scales to Determine Map Distances and Locations** – Use scales to indicate location and maps to determine distances between two geographic locations.

- **Use Concepts and Computational Skills** – Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.

- **Use Ratios and Percent in Problem Solving** – Use ratios and percent in problem-solving situations, such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.

- **Addition, Subtraction, Multiplication, and Division of Fractions** – Add, subtract, multiply, and divide fractions and decimal numbers to three places.

DEVELOPING THE CRITERION-REFERENCED TESTS

Criterion-referenced tests, or objective-based tests, relate to specific objectives and measure skills and competencies which students are expected to learn. Use of this type of test makes it possible to determine strengths and weaknesses in specific skill areas.

Although a number of nationally standardized mathematics tests were available, none was judged to be totally adequate for measuring student performance on Texas' essential objectives. New criterion-referenced tests which measure selected Texas objectives were developed for this purpose.*

Test items were developed and field tested with Texas students. Items determined to be acceptable on the basis of content, level of difficulty, and freedom from cultural bias were then examined by content specialists who selected the four "best" items for each objective.

The mid-point mathematics test administered at the sixth grade contains 48 items measuring 12 of the 18 objectives. The exit level test administered at the eleventh grade contains 44 items measuring 11 of the 24 objectives. The criterion for mastery of an objective was established as correctly answering at least three out of four items for the objective.

ADMINISTERING THE TESTS

Representative samples of approximately 10,000 sixth grade students and 8,000 eleventh grade students were randomly selected to take the criterion-referenced tests. Tests were administered between April 3 and May 10 by trained test administrators under a contract with Research Triangle Institute of Raleigh-Durham, North Carolina.

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*Detailed information on development of the criterion-referenced tests used in the Texas Assessment Project is provided in *Report on the Development of Objective-Based Tests in Reading and Mathematics.*

SPECIAL CONSIDERATIONS

When reviewing results, several factors should be kept in mind:

- The sampling procedures permit reporting with a high level of statistical precision and confidence that the findings reliably represent performance of all Texas sixth and eleventh graders.

- These results can be used to identify successes and problem areas in achievement of students on a statewide basis and within each of the 20 regions of the state. No information is available from this sample about the performance of any school district, school campus, educational program, teacher, or individual student. No attempt should be made to use these findings to make judgments about the performance of any single school district, campus, teacher, or student.

- The findings reported here are based on a single measurement taken in 1978, and do not purport to show longitudinal comparisons. To measure change in the achievement of students, performance data must be gathered over a period of time.

- Conventional methods were used to determine statistical significance of differences between group scores. Statistically significant differences were used as the basis for the findings in this report. The methodology for determining statistical significance, including sample sizes, is contained in the technical documentation.

- Different tests were administered at the sixth and eleventh grades. Items included were at the levels of difficulty which students at grade six and grade eleven are expected to master. Since several objectives for the two grades are similar, some comparisons of student performance have been made. However, such comparisons are only approximations and do not provide a valid statistical comparison.

STATEWIDE AND REGIONAL RESULTS OF CRITERION-REFERENCED TESTS OF MATHEMATICS

Covered in this report are the results of criterion-referenced tests in mathematics administered to samples of sixth and eleventh grade students in Texas. Test results are reported in terms of the percentages of students in specifically identified groups in each of the two grades who mastered the essential mathematics objectives. Performance is first reported on a statistical basis with emphasis on notably high or low performance levels on a statewide basis for all the students in each grade. Results are then reported for students grouped according to education service center region, size and type of school district, per pupil expenditure, sex, and ethnicity. Performance is also related to selected school and home factors which are believed to influence student achievement in mathematics.

Appendix B, page 36 contains performance data for selected student groups to supplement that shown in the body of this report.

THREE LEVELS OF STUDENT PERFORMANCE

Student performance for the state is presented in terms of the percentage of students who demonstrated mastery of each objective. Mastery was demonstrated by correctly answering at least three out of four test items for an objective. Three performance levels for groups of students have been designated to describe mastery of each objective:

Level I – objective mastered by 90 percent or more of the students,

Level II – objective mastered by 75 to 89 percent of the students,

Level III – objective mastered by fewer than 75 percent of the students.

Statewide student achievement is considered adequate when an objective was mastered by 90 percent or more of the students (Level I).

When an objective was mastered by 75 to 89 percent of students (Level II), performance is considered less than adequate but not necessarily a deficiency which is a high priority in the state.

Student performance is considered to be critically deficient on those objectives mastered by fewer than 75 percent of the students (Level III).

In addition to the degree of mastery, the nature of each objective should be taken into account in determining whether a high priority need exists in the state.

The mastery criterion of at least three out of four correct answers per objective and the three levels of mastery described above were based on judgment of Texas Education Agency staff. Three out of four items answered correctly sets a criterion high enough to reduce the probability of mastering an objective by guessing, while providing reasonable

leeway in the event that a student missed an item because of a careless error. Although it is desirable that all students in Texas master these essential objectives, it is unrealistic to expect that every student will master every objective. Ninety percent mastery (Level I) is regarded as a realistic expectation.

STATEWIDE MATHEMATICS RESULTS

Ninety percent or more eleventh graders demonstrated mastery (Level I) of four of the mathematics objectives calling for computation, counting, and interpretation skills. There were no objectives which were mastered by as many as 90 percent of sixth graders.

Both sixth and eleventh graders performed less well on objectives judged to call for higher order cognitive skills applied to problem-solving*, such as "solve problems using multiplication and division," "solve problems using measures," "use concepts and computational skills in keeping personal records," and "use ratios and percent in problem-solving." Between 75 and 89 percent of eleventh graders attained mastery (Level II) on two objectives dealing with higher order cognitive skills requiring the application of computation skills: "solve problems using measures" and "solve problems involving whole numbers." Fewer than 75 percent of sixth grade students demonstrated mastery (Level III) on three objectives requiring higher order cognitive skills and application.

Tables I and II show the percentages of students statewide who demonstrated mastery of the essential mathematics objectives measured by the tests.

*Throughout this report reference is made to objectives judged to require higher order cognitive skills and the synthesis of various skills applied to the solution of problems. These objectives are marked by an asterisk (*) in Tables I and II.

PERCENT OF SIXTH GRADE STUDENTS MASTERING ESSENTIAL MATHEMATICS OBJECTIVES

STATEWIDE RESULTS BY PERFORMANCE LEVELS

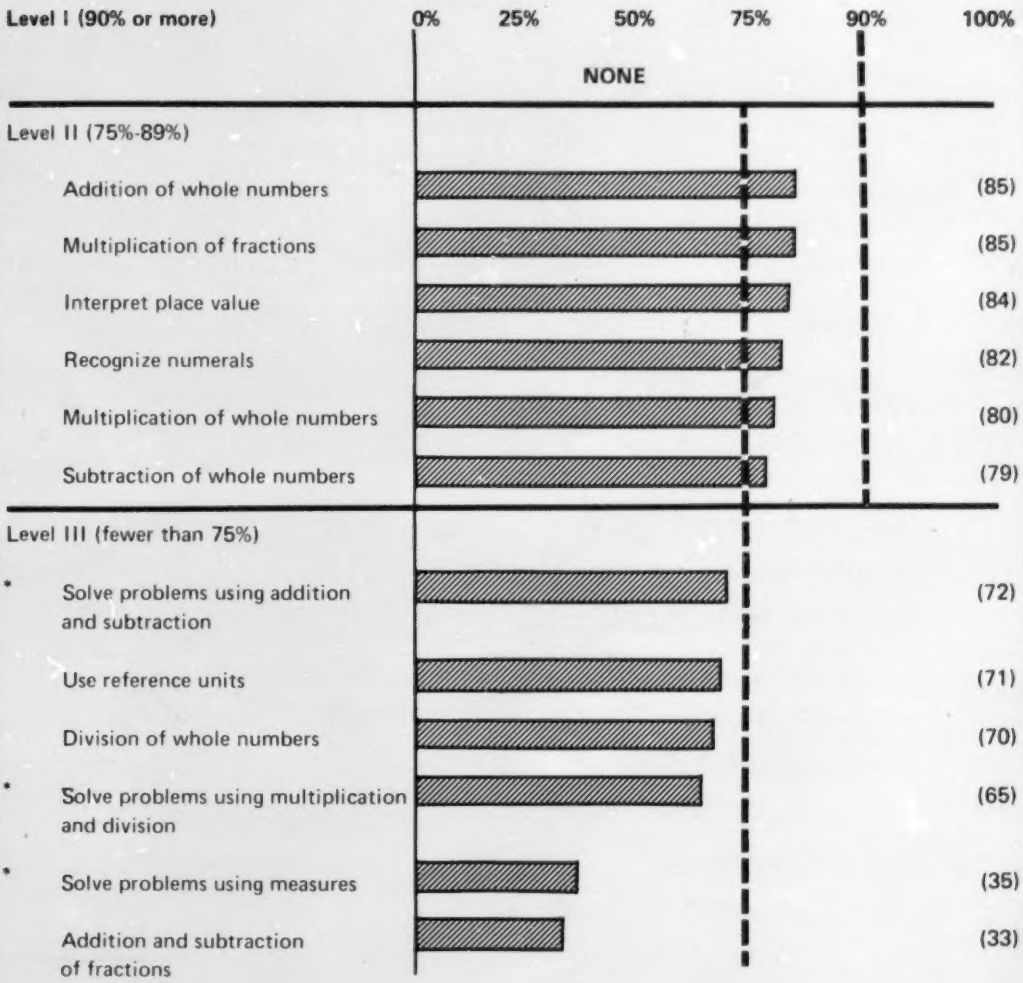

TABLE I

PERCENT OF ELEVENTH GRADE STUDENTS MASTERING ESSENTIAL MATHEMATICS OBJECTIVES

STATEWIDE RESULTS BY PERFORMANCE LEVELS

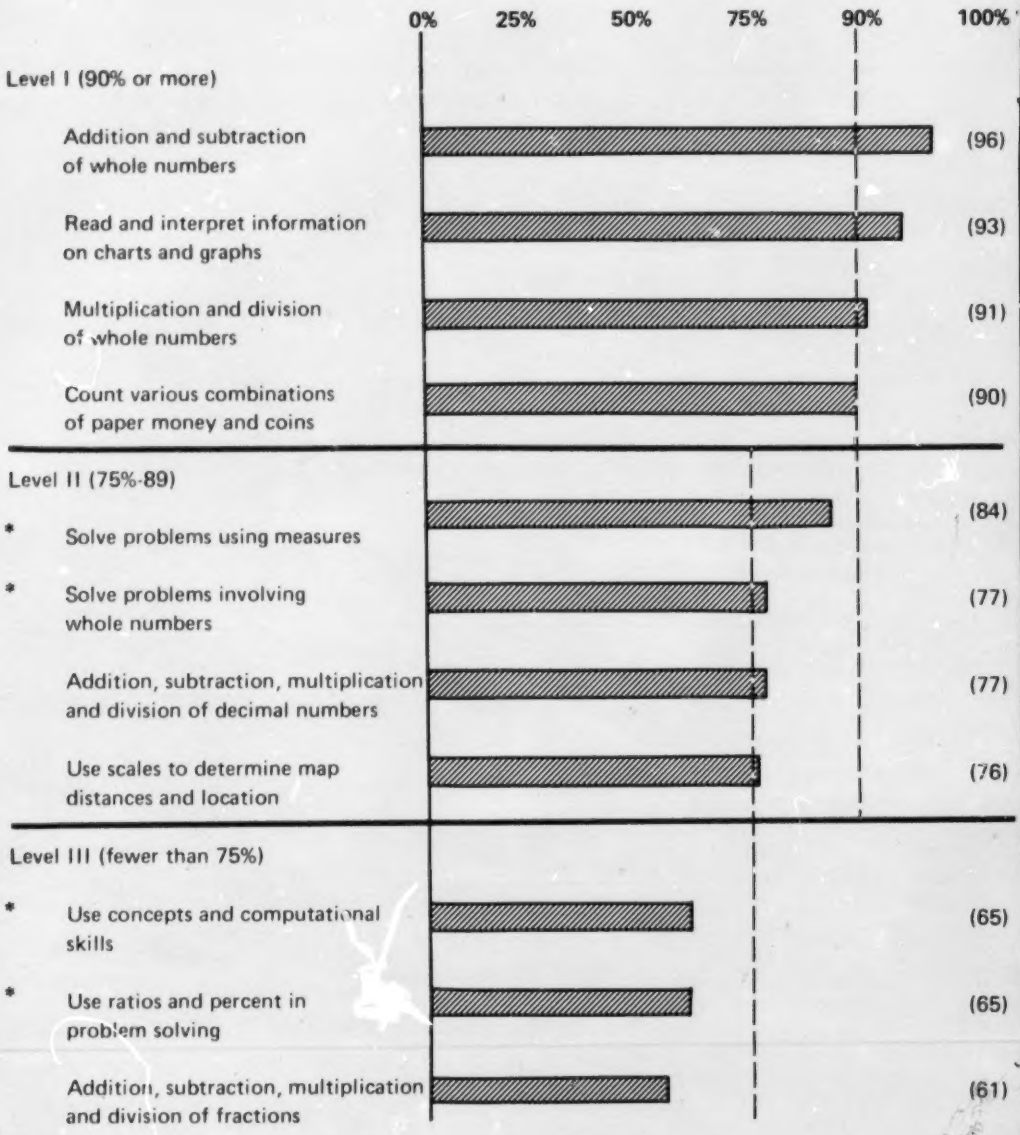

TABLE II

In addition to considering levels of mastery for each objective separately, it is useful to look at the performance of students on all the objectives measured by their respective tests. The criterion-referenced tests developed to measure selected essential mathematics objectives for Texas students were not designed to provide a "total mathematics" score that represents comprehensively a student's mastery of mathematics. The tests were intended to measure mastery of key objectives to provide specific information on where student achievement is strong or weak within the mathematics curriculum. Results are reported in terms of a "profile" of mastery of the various objectives covered by the test. In a broad sense a student's successful mastery of all or most of the objectives measured may be taken as an indication that he or she is probably achieving well in the subject of mathematics; conversely, a student who demonstrates mastery of only a few of the objectives tested is probably doing poorly in the whole subject of mathematics.

Table III shows the proportion of sixth and eleventh grade students who mastered a given number of the mathematics objectives. There are some sixth graders and slightly more eleventh graders who are highly proficient in essentail mathematics skills and competencies; 13 percent of the sixth graders and about one-third of the eleventh graders demonstrated mastery of all objectives tested.

PERCENT OF STUDENTS MASTERING SPECIFIED NUMBER OF MATHEMATICS OBJECTIVES*

Grade Six		Grade Eleven	
Number of Objectives Mastered	Percent of Students Mastering	Number of Objectives Mastered	Percent of Students Mastering
	%		%
12 (All)	13	11 (All)	32
At least 11	31	At least 10	51
At least 10	48	At least 9	64
At least 9	60	At least 8	74
At least 8	70	At least 7	82
At least 7	77	At least 6	88
At least 6	83	At least 5	92
At least 5	88	At least 4	96
At least 4	92	At least 3	98
At least 3	96	At least 2	99
At least 2	98	At least 1	99+
At least 1	99+		

TABLE III

*These are not longitudinal data. Eleventh grade students were tested on more difficult items than sixth grade students

REGIONAL MATHEMATICS RESULTS

Performance data were collected for the 20 geographical regions of the state, each served by an education service center. The 20 regional education service centers provide a broad range of planning, curriculum, inservice, media and other services to school districts within their regions. Since school districts participate in service center activities on a voluntary basis, the findings about student performance in a region cannot in any way be used as an evaluation of the effectiveness of the regional education service center. The purpose of reporting results for each region is to provide information that each education service center can use in designing and offering services appropriate for the school districts in the region.

Figure 1 shows a map of Texas divided into education service center regions.

TWENTY EDUCATION SERVICE CENTER REGIONS OF TEXAS

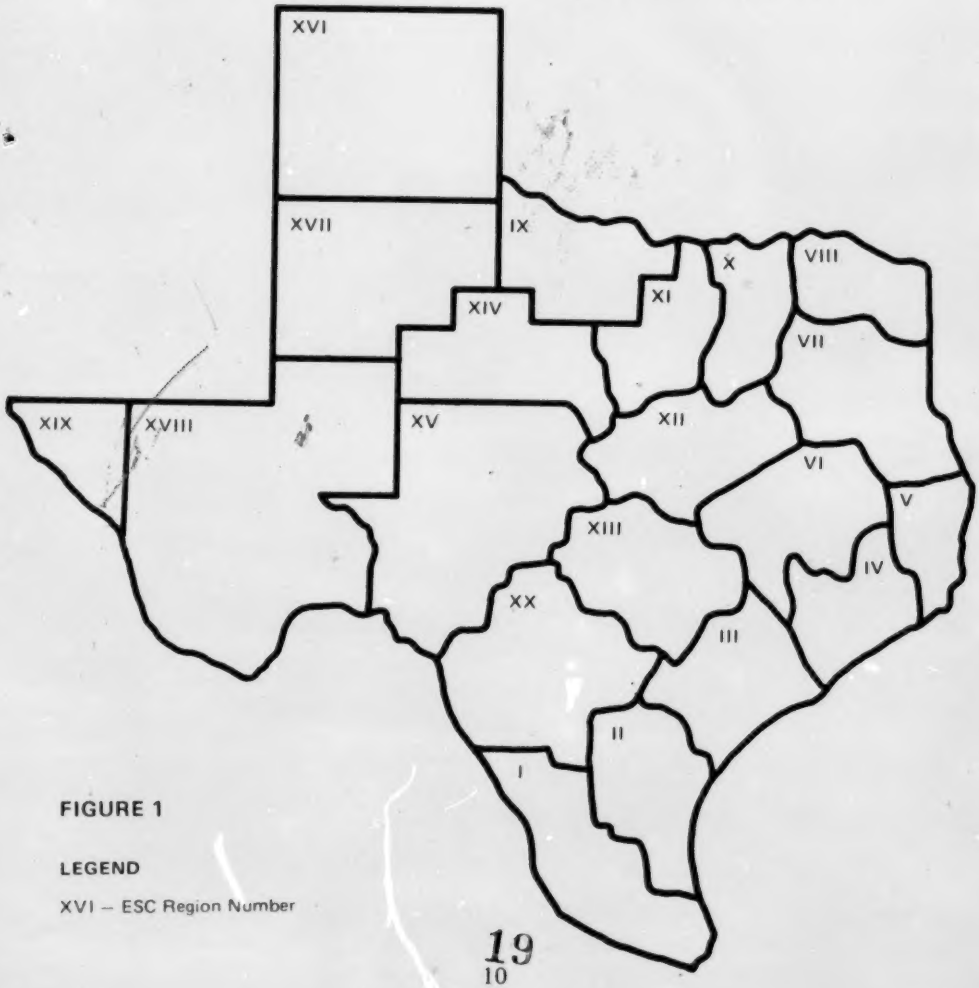

FIGURE 1

LEGEND

XVI – ESC Region Number

Tables IV and V show student performance by region on the sixth and eleventh grade tests. Differences among regions in total population and proportion of minority students are important factors to consider when examining these tables.

Student performance in the twenty regions generally followed the pattern of statewide student achievement on the various objectives in both grades six and eleven. Sixth grade students in regions IX, XV, and XVI, and eleventh graders in regions XV and XVI, attained percentages of mastery as groups that were significantly higher than those of students statewide on more than half of the objectives tested. Performance of students in the other regions was a mixture of percentages of mastery above and below the statewide results.

PERCENT MASTERY IN MATHEMATICS AND ETHNIC PROPORTION OF SIXTH GRADE STUDENTS BY REGION

OBJECTIVES		Statewide Results	Education Service Center Regions																			
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
Add column of 5 numbers, limited to 5 numbers with regrouping		85	85	89	85	85	82	85	85	85	87	80	86	88	86	85	85	88	81	82	87	86
Demonstrate multiplication of fractions		85	89	86	86	84	84	84	82	88	87	85	85	84	88	83	87	92	86	87	88	85
Interpret place value		84	78	86	85	87	83	83	86	84	90	82	84	86	82	84	85	88	82	85	87	78
Read and write 5-digit numerals		82	76	82	84	83	85	82	83	85	87	79	83	89	82	86	84	89	82	82	81	78
Multiply numbers where regrouping is necessary, limit to 3 digits		80	82	86	85	78	74	77	85	84	85	76	78	82	82	80	83	83	80	79	82	79
Perform subtraction using 4-digit numbers, with regrouping		79	84	83	83	77	78	78	81	80	82	77	80	85	31	79	85	84	80	78	82	76
Perform estimations and solve problems involving addition and subtraction of whole numbers, simple fractions, and decimals		72	72	76	75	72	70	75	73	74	77	68	74	74	76	74	78	81	71	74	73	69
Use reference units of weight/mass, length, area, volume, temperature, time and money to estimate measures		71	64	74	74	70	69	75	71	74	85	64	70	74	76	71	77	83	73	77	74	69
Divide numbers with remainders, limit to 3 digits		70	69	71	72	68	68	71	75	75	79	68	70	73	72	76	77	79	71	71	75	63
Perform estimations and solve problems involving multiplication and division, whole numbers, simple fractions, and decimals		65	66	65	67	67	64	67	65	68	74	56	67	69	66	68	71	74	61	64	65	60
Solve problems using linear area, volume, weight/mass, money, time, and temperature measures		35	28	33	37	37	35	43	35	37	44	30	35	39	43	41	38	41	32	37	34	30
Add and subtract fractions having unlike denominators		33	25	31	29	33	32	33	43	45	43	28	32	42	41	40	39	36	28	37	32	26
STUDENT POPULATION																						
Total number (in thousands)		194.2	10.3	6.5	4.1	40.9	5.9	5.7	9.4	3.7	2.6	27.5	15.1	6.2	10.4	3.4	3.3	4.7	5.8	3.8	7.7	17.4
Ethnic proportions	Black	17	0*	3	15	24	28	23	27	28	10	23	14	21	14	6	4	6	10	7	3	7
	Mexican American	26	90	63	35	16	3	6	2	1	8	9	8	11	28	22	39	20	39	34	68	58
	Other	57	10	34	50	60	69	71	71	71	82	68	78	68	58	72	57	74	51	59	29	35

*less than 1%.

TABLE IV

PERCENT MASTERY IN MATHEMATICS AND ETHNIC PROPORTION OF ELEVENTH GRADE STUDENTS BY REGION

OBJECTIVES		Statewide Results	Education Service Center Regions																			
			I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
Use the addition facts through 10 + 10 in addition and subtraction processes.		96	98	95	97	96	93	97	95	94	96	95	96	94	97	96	98	99	94	94	97	94
Read and interpret mathematical information on a chart or graph, such as circle, bar line, and picture graphs		93	91	91	93	91	93	93	92	94	96	93	93	94	95	94	98	94	94	96	94	93
Use the multiplication facts through 10 x 10 in multiplication and division processes.		91	93	88	91	90	89	93	91	88	92	92	92	89	93	92	95	94	92	90	92	90
Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.		90	92	89	91	89	90	92	91	91	92	89	88	87	92	90	93	92	92	95	90	89
Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.		84	79	79	87	86	81	84	81	82	88	85	88	81	87	88	88	86	86	88	81	82
Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.		77	77	72	79	77	77	78	78	75	84	76	76	78	80	83	85	85	76	82	76	70
Add, subtract, multiply, and divide decimal numbers to three places.		77	81	76	83	77	78	78	77	75	81	78	76	71	83	82	83	83	77	79	78	73
Use scales to indicate location and maps to determine distances between two geographic locations.		76	71	72	77	77	74	76	73	72	80	75	79	78	77	76	81	81	78	81	79	79
Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.		65	57	62	66	62	65	70	67	59	71	67	65	59	72	66	72	71	67	72	64	60
Use ratios and percent in problem solving situations, such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.		65	60	57	66	66	66	67	68	67	70	65	67	67	70	65	71	79	68	69	60	59
Add, subtract, multiply, and divide fractions.		61	58	54	64	61	63	62	61	59	64	61	59	57	69	62	69	74	63	68	55	58
STUDENT POPULATION																						
Total number (in thousands)		175.6	7.8	6.4	3.5	38.2	6.0	4.4	8.1	2.7	2.4	24.9	15.3	5.5	8.6	2.8	2.6	4.6	4.8	4.4	7.5	15.1
Ethnic proportions	Black	14	0*	3	16	19	26	21	23	24	6	16	14	17	13	4	3	4	8	7	2	9
	Mexican American	18	85	48	27	7	0*	2	0*	0*	7	4	5	6	19	12	24	9	23	17	58	42
	Other	68	15	49	57	74	74	77	77	76	87	80	81	77	68	83	73	87	69	76	40	49

*less than 1%.

TABLE V

MATHEMATICS ACHIEVEMENT OF OTHER REPORTING GROUPS

Information about the students tested was collected in two ways: by asking local school officials and by asking the students themselves at the time of testing.*

SEX

More sixth grade females attained mastery than males on 10 of the 12 essential objectives. The greatest differences in performance, 8 to 10 percentage points, occurred on the addition, division, and multiplication of whole numbers.

Higher percentages of eleventh grade males attained mastery that did females on 4 of the 11 objectives. The mathematics criterion-referenced test of exit level objectives was the only test on which performance of males equaled or exceeded that of females. Eleventh grade males performed better than females by five percentage points on two objectives judged to involve higher order cognitive skills applied to solving problems using measures, ratios, and percents.

Performance of males and females is shown in Figures 2 and 3.

*Appendix C, page 44 contains the forms on which student information was collected.

PERCENT OF TEXAS MALE AND FEMALE STUDENTS MASTERING SIXTH GRADE ESSENTIAL MATHEMATICS OBJECTIVES

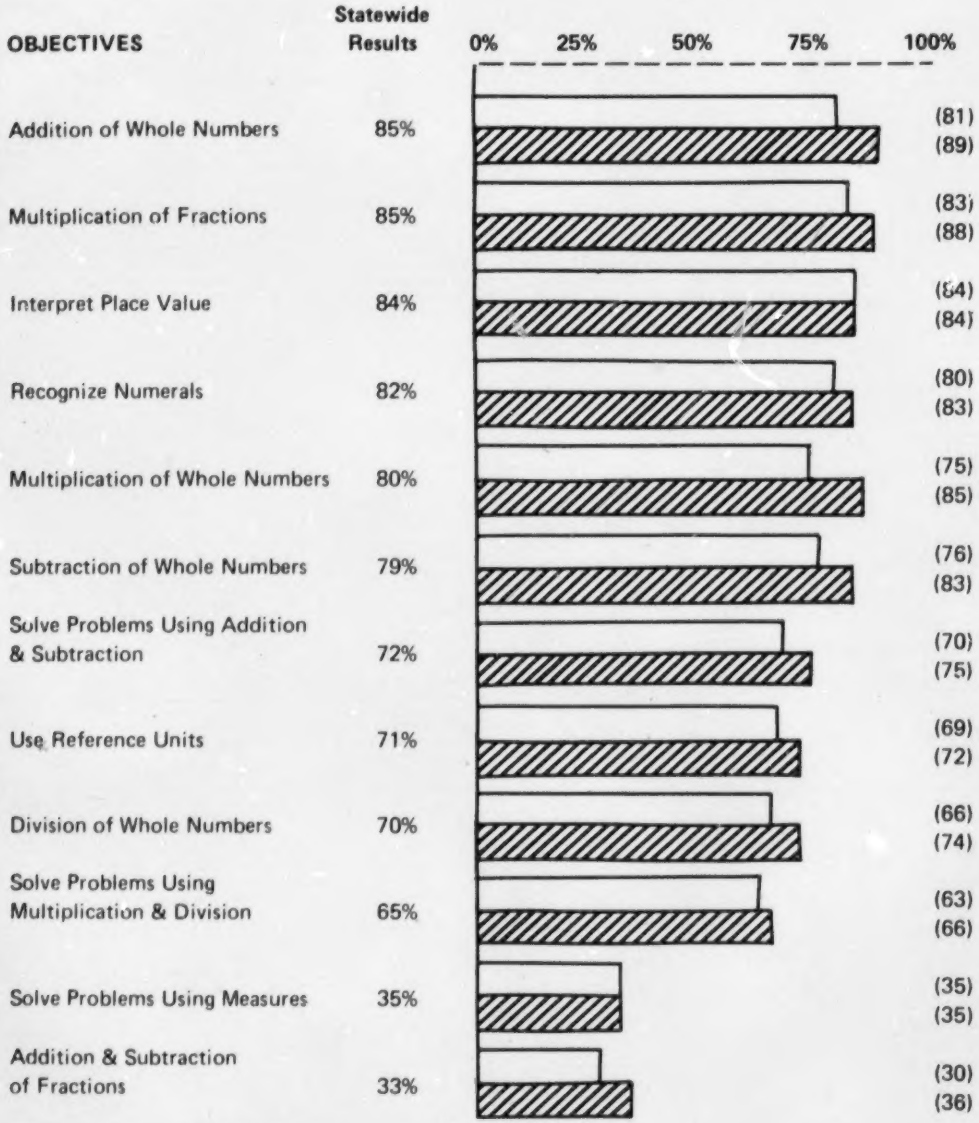

FIGURE 2

PERCENT OF TEXAS MALE AND FEMALE STUDENTS MASTERING ELEVENTH GRADE ESSENTIAL MATHEMATICS OBJECTIVES

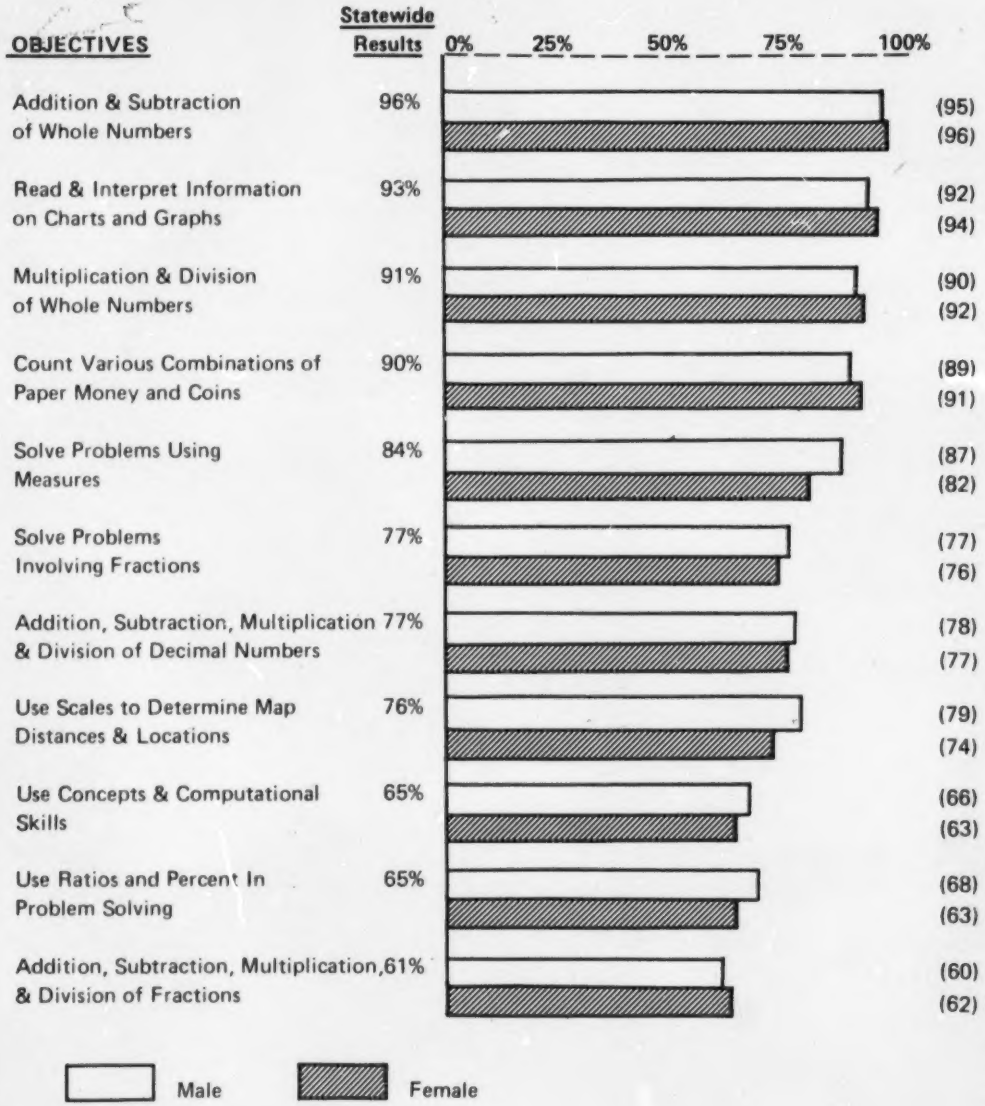

FIGURE 3

ETHNICITY

Students were identified as members of three ethnic groups: black, Mexican American, and "other". (The "other" category was made up almost entirely of white students.) These proportions are shown in Figure 4.

PROPORTION OF STUDENTS IN EACH ETHNIC CATEGORY AT THE SIXTH AND ELEVENTH GRADES

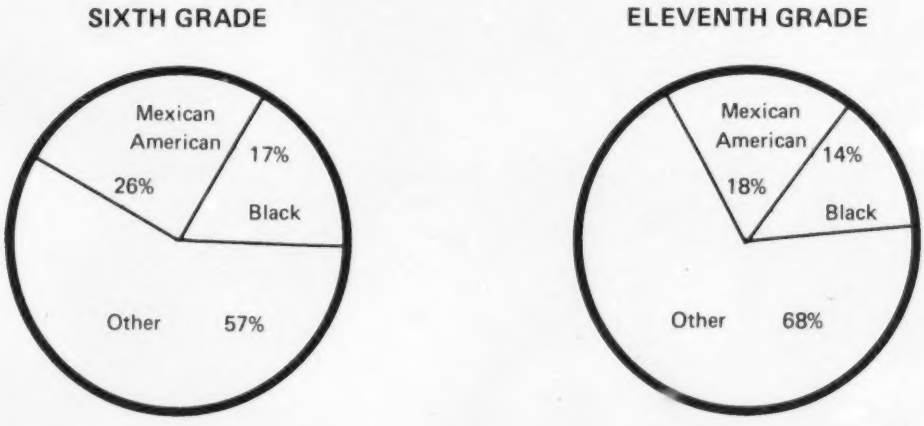

FIGURE 4:

Data in Figures 5 and 6 show differences in performance among ethnic groups on objectives at each grade level.

At the sixth grade, at least 25 percent more "other" students than black students demonstrated mastery on three objectives dealing with skills indispensable to carrying out mathematical operations: "division of whole numbers," "addition and subtraction of fractions," and "use of reference units." The percentages of black students demonstrating mastery were 31 to 34 points below those of "other" students on three objectives judged to require higher order cognitive skills and the synthesis of a number of skills applied to solving problems. Ninety percent of black sixth graders did not master the objective "solve problems using measures," as compared with about three-fourths of Mexican American students and more than half of "other" students.

PERCENT OF SIXTH GRADE STUDENTS MASTERING ESSENTIAL MATHEMATICS OBJECTIVES BY ETHNIC GROUP

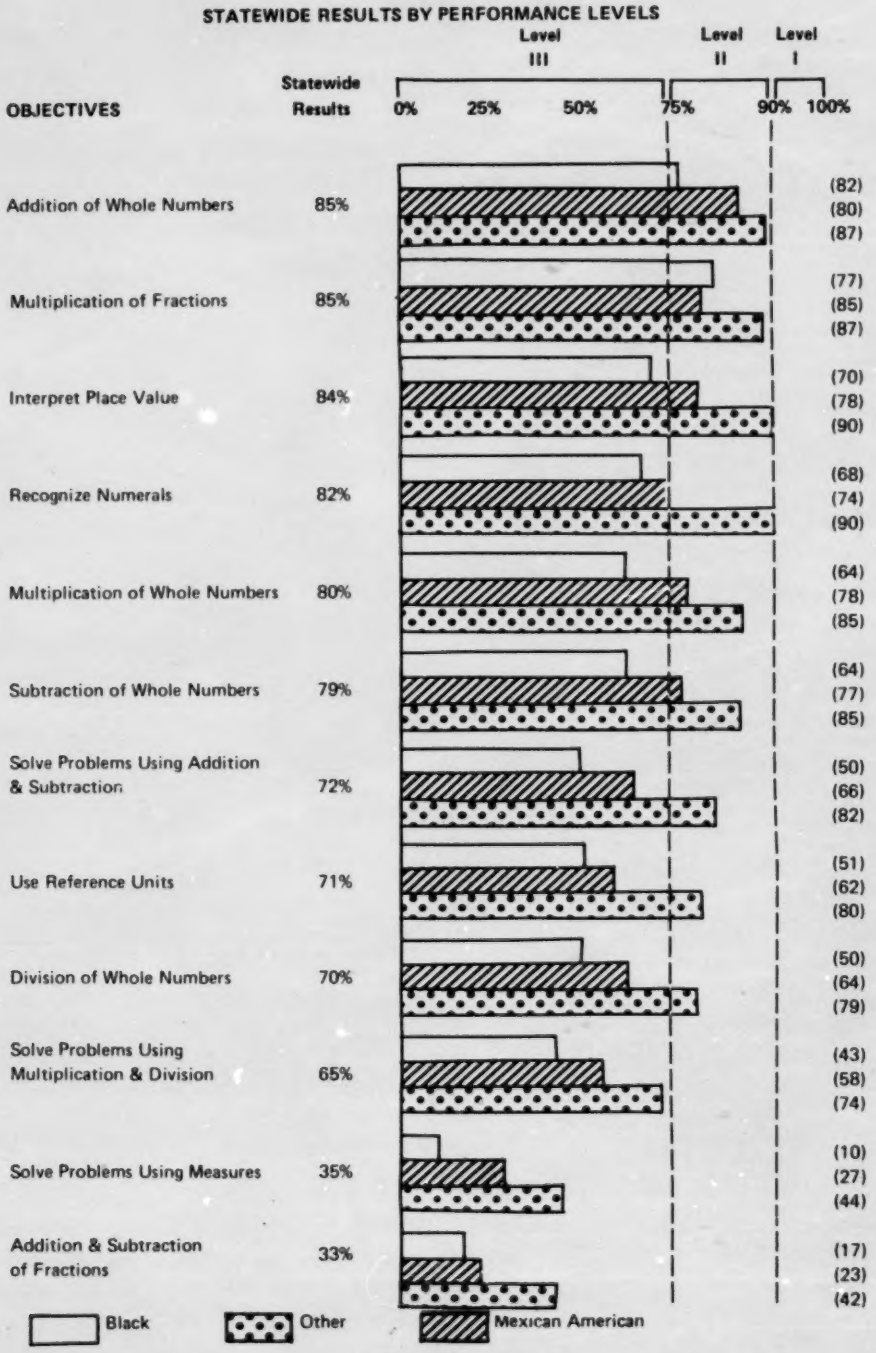

FIGURE 5

27

PERCENT OF ELEVENTH GRADE STUDENTS MASTERING ESSENTIAL MATHEMATICS OBJECTIVES BY ETHNIC GROUP

STATEWIDE RESULTS BY PERFORMANCE LEVELS

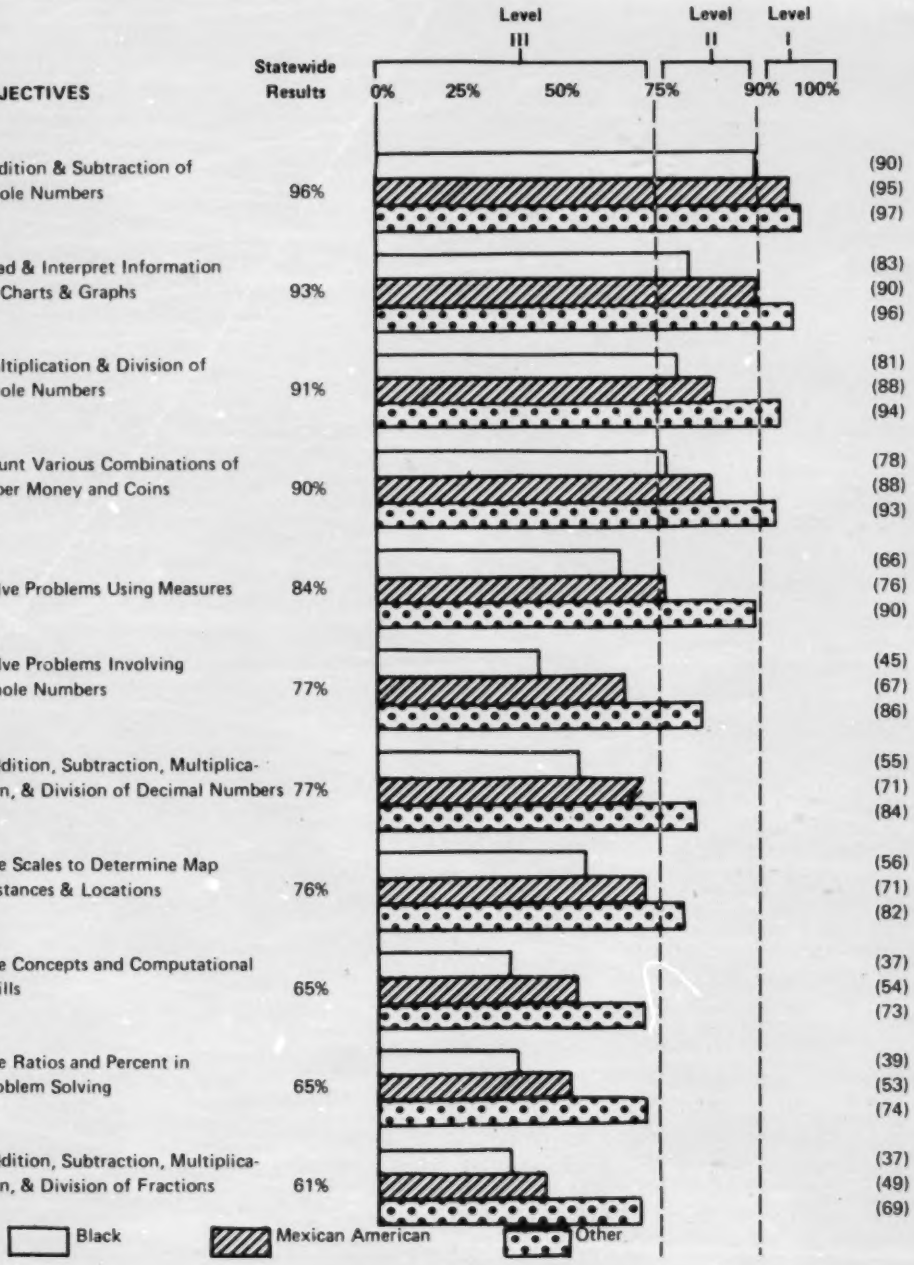

FIGURE 6

The percentages of Mexican American students attaining mastery were below those of "other" students in a pattern similar to that of black students. Differences, ranging between 15 and 19 percentage points, were not as great as between black students and "other" students.

On 10 of the 12 objectives, fewer than 75 percent of sixth grade black students attained mastery (Level III). On seven objectives, fewer than 75 percent of Mexican American sixth graders demonstrated mastery. On three objectives, fewer than 75 percent of "other" students in the sixth grade attained mastery.

At the eleventh grade, fewer black students than "other" students attained mastery on several objectives requiring application of mathematics skills and concepts, including use of whole numbers, ratios, percents, and measures in solving problems; percentages of black students mastering these objectives were 24 to 41 points lower than those of "other" students. Percentages of Mexican American students demonstrating mastery on these objectives were lower than those of "other" students, the differences ranging from 14 to 21 points.

Ninety percent of eleventh grade black students attained mastery on "addition and subtraction of whole numbers". Ninety-five percent of Mexican American students attained mastery on that objective, and 90 percent demonstrated mastery on "interpreting graphs and charts".

Table VI shows the percentages of students in each ethnic group at each grade level who demonstrated mastery of a specified number of objectives on the criterion-referenced tests of mathematics. More than twice the percentage of eleventh grade students demonstrated mastery of all objectives than did their ethnic counterparts in the sixth grade. For both grades the proportion of "other" students demonstrating mastery of all objectives tested was more than four times that of black students.

PERCENT OF STUDENTS MASTERING SPECIFIED NUMBER OF MATHEMATICS OBJECTIVES BY ETHNIC GROUP

GRADE SIX

Number of Objectives Mastered	PERCENT OF STUDENTS MASTERING			All Students Tested
	Blacks	Mexican Americans	Other	
12 (All)	4	6	18	13
At least 11	12	20	40	31
At least 10	23	36	59	48
At least 9	34	48	70	60
At least 8	43	59	79	70
At least 7	52	69	85	77
At least 6	61	76	90	83
At least 5	70	83	93	88
At least 4	78	89	96	92
At least 3	86	94	98	96
At least 2	94	97	99+	98
At least 1	98	99	99+	99+

GRADE ELEVEN

Number of Objectives Mastered	PERCENT OF STUDENTS MASTERING			All Students Tested
	Blacks	Mexican Americans	Other	
11 (All)	9	22	40	32
At least 10	19	36	61	51
At least 9	29	50	75	64
At least 8	42	61	84	74
At least 7	56	73	90	82
At least 6	68	82	94	88
At least 5	76	88	97	92
At least 4	84	93	98	96
At least 3	91	97	99+	98
At least 2	96	99+	99+	99
At least 1	99	99+	99+	99+

TABLE VI

TYPE AND SIZE OF SCHOOL DISTRICT

Test results show performance of students in five types of school districts: (1) urban, (2) other central city, (3) suburban, (4) non-metropolitan, and (5) rural.

The percentages of students in urban districts mastering sixth grade objectives were lower than those of suburban students for most of the objectives. Differences ranged from 6 to 14 points.

Percentages of eleventh grade students in suburban districts attaining mastery were 7 to 13 points higher than those of urban students on more than half of the objectives measured.

Examination of performance of students by size of district and by type of district revealed similar patterns. Students in small districts performed like those in rural districts; students in large districts performed like those in urban districts.

For classifications of school districts by type and size, see Appendix D, page 46. Appendix B, page 36, provides information about the performance of students by objective for each classification of school districts.

FAMILY ECONOMIC STATUS

Studies have shown a relationship between student performance and economic status of the family. Eligibility for participation in the National School Lunch Program, which provides free or reduced price meals for students, is a dependable indicator of low economic status of families. Eligibility for this program, which operates in 1,063 of the 1,100 school districts in Texas, is based on family income and the number of children in the family. Information about eligibility for free or reduced price lunch was taken from school records. Based on this criterion, about 36 percent of Texas sixth graders were identified as members of low income families.

The performance of students who were members of low income families was below that of students who were not from low income families on all sixth grade objectives and on all but one of the eleventh grade objectives. In both sixth and eleventh grades, percentages of students from low income families attaining mastery were between 17 and 23 points lower than percentages of non-low income students for eight objectives calling for higher order cognitive skills.

PER PUPIL EXPENDITURE

Differences in performance of sixth graders did not form a consistent pattern among districts classified according to state and local expenditures per pupil. Only minor differences occurred among eleventh graders; higher percentages of students from districts which expended over $700 in state and local funds per pupil demonstrated mastery of three of the objectives than did students from districts that expended less than $700 per pupil.

To reach any definitive conclusions about the relationship between per pupil expenditure and levels of student achievement, information would be necessary in such areas as:

- All sources of funds (beyond state and local sources), to give a total picture of amounts of amounts of money being spent per pupil by a district,
- Distribution of funds to campuses within a district and to programs for specified student populations within a campus,
- Variations in patterns of student achievement within districts.

STUDENT POPULATIONS WITH SPECIAL LEARNING CHARACTERISTICS

School officials were asked to indicate whether students participated in the following special programs:

- Gifted and Talented – Is the student participating in a planned program of differentiated instruction for the gifted and/or talented?
- Title I Regular – Is the student a participant in the federally funded program for educationally disadvantaged students?
- State Compensatory Education – Is the student a participant in the state funded program for educationally disadvantaged students?
- Special Education – Is the student a participant in a specific school program for persons who are mentally and/or physically handicapped?

Appendix B, page , describes performance by objective for groups of students eligible for and participating in these special programs.

Among the special education programs, only those students participating in programs for the language and/or learning disabled were tested in sufficient numbers for results to be reliably reported.

The performance of students in these groups followed predictable patterns when compared with the results of previously conducted studies:

- On most objectives, students identified as gifted performed better than the non-gifted at both grade levels even though the gifted "characteristics" may have been in non-academic areas such as leadership, music, or art.
- The performance of students participating in compensatory education programs was below that of non-participating students.
- The lowest performance was found among students identified as having a language and/or learning disability.

In general, the student performance data indicate that school districts have accurately identified students with special learning characteristics and appropriately placed them in programs which address their special needs.

HOME FACTORS RELATED TO ACHIEVEMENT IN MATHEMATICS

Students were asked to provide information about home conditions believed to influence learning. Variables on which data were collected include: (1) language(s) spoken in the home, (2) reading materials in the home, (3) amount of time spent watching television, (4) amount of time spent on homework per week, (5) educational level of parents, and (6) educational aspirations of eleventh graders.

These characteristics should not necessarily be regarded as having a direct cause-and-effect relationship upon the performance of students. However, they may reveal consistent differences between high and low achievers.

LANGUAGE(S) SPOKEN IN THE HOME

Students were asked to respond to questions about dominant home language. Responses to questions, "Is English the language spoken most often in your home?", and "Is a language other than English spoken in your home?", were combined to establish the categories: "Use Only English," "Use English Most Often," and "Use Another Language Most Often."

Higher percentages of students reporting only English spoken at home demonstrated mastery of 10 of the 12 sixth grade objectives, and of 10 of the 11 eleventh grade objectives, than did students from homes where another language was spoken predominantly. The significant differences ranged from 5 to 23 percentage points. Performance levels of students from homes where a combination of languages is spoken ranged between the all-English and non-English categories.

READING MATERIALS IN THE HOME

Students were asked whether they had regular access in their homes to: (1) newspapers, (2) magazines, (3) encyclopedias, and (4) more than 25 books. Student responses to the four reading material questions were combined to form an index which would focus more clearly on this home factor. The index categorized students who reported having none, one, two, three, or four types of reading materials listed. Performance of students on each objective is shown in Appendix B, page 36.

Sixth grade students who reported many reading materials in their homes performed better on all sixth grade objectives than did students from homes with few reading materials. The differences ranged from 5 to 33 percentage points. On four objectives requiring higher order cognitive skills and problem-solving competencies, percentages of sixth grade students demonstrating mastery who reported few reading materials in their homes were 27 to 33 points lower than those of students reporting many reading materials.

Eleventh grade students from homes with many reading materials performed better on 10 of the 11 mathematics objectives than did students from homes with few reading materials. On four objectives calling for higher order cognitive skills applied to problem solving, percentages of students from homes with many reading materials demonstrated mastery 22 to 32 percent higher.

TIME REPORTED WATCHING TELEVISION

Students were asked to indicate the amount of time they spent watching television the night before they took the test. Responses were grouped into several categories: no time spent watching television, one to two hours, two to four hours, four to five hours, and five hours or more.

Sixth graders who reported watching television from zero to four hours the night before they took the test attained similar percentages of mastery on all 12 objectives. Their performance was higher than those who watched four to five hours of television on most of the objectives. The sharpest differences in performance occurred among students who reported watching more than five hours of television; smaller percentages of these students demonstrated mastery of 10 of the 12 objectives than did students in the other categories. For these 10 objectives, the differences between percentages of mastery of students who watched zero to four hours television and those who watched more than five hours ranged between 6 and 17 percentage points.

For eleventh grade students, the differences in performance followed a similar pattern. Highest percentages of mastery for 10 of the objectives were attained by students who reported watching television zero to four hours. As viewing time increased to five hours or more, percentages of students demonstrating mastery were between 11 and 31 percentage points lower for these 10 objectives.

This relationship between student performance and amount of television watched did not occur for three objectives at both grade levels; these objectives dealt with simple addition and subtraction skills and multiplication of fractions.

HOMEWORK

Among sixth graders, the greatest differences in performance occurred between students who reported doing five or more hours homework per week and those reporting that they did not complete homework that was assigned; for all of the objectives measured, differences ranged from 9 to 35 percentage points. On four objectives judged to involve higher cognitive skills and problem-solving competencies, percentages of students doing five or more hours homework who demonstrated mastery were 20 to 35 points higher than those who did not complete assigned homework. A similar pattern occurred on 10 of the objectives between the performance of students who completed more than five hours homework per week and those who reported no homework assigned; however, the magnitude of the differences in percentages of students demonstrating mastery was not as great.

Among eleventh graders a slightly different pattern emerged. More students who reported doing over five hours homework per week attained mastery on 10 of the objectives than did students who reported doing less homework or none at all. However, the lowest percentages of mastery were attained, not by eleventh graders who reported that they did not complete assigned homework, but by the students who reported that no homework was assigned. On objectives calling for higher order cognitive processes applied to solving problems, these differences ranged between 13 and 24 percentage points.

The overall conclusion is that those students who reported doing some homework performed better than those who did none, and those who spent more time doing homework performed the best of all.

EDUCATIONAL LEVELS OF PARENTS AND EDUCATIONAL ASPIRATIONS OF THE STUDENTS

More eleventh grade students who reported high educational levels of their parents attained mastery of 10 of the objectives than did students whose parents had not completed high school. Differences ranged between 7 and 27 percentage points.

Educational aspirations of the students themselves were associated with even greater differences in percentages on 10 of the objectives. Ten to 38 percent more of the students planning to attend graduate or professional school demonstrated mastery of these 10 objectives than did students who said they plan to graduate from high school.

MAJOR FINDINGS

1. Ninety percent or more (Level I) eleventh grade students demonstrated mastery of four of the 11 objectives tested. These objectives dealt mainly with computation skills and other basic skills necessary for carrying out more complex mathematical processes. Eleventh graders performed less well on objectives judged to require higher order cognitive skills applied to problem solving. For two of these kinds of objectives, fewer than 75 percent of eleventh graders demonstrated mastery (Level III):

   - use concepts and computation skills in keeping personal records, earning a living, and solving problems,
   - use ratios and percents in problem solving.

2. There were none of the objectives which were mastered by as many as 90 percent of sixth graders. Six of the essential objectives measured were mastered by fewer than 75 percent of sixth grade students (Level III). Included in these six objectives were three that deal with higher order cognitive skills and problem-solving competencies:

   - solve problems using addition and subtraction,
   - solve problems using multiplication and division,
   - solve problems using measures.

3. Recognizing that the separate tests for sixth and eleventh grades were not designed for specific comparisons, and that the data collected in this study were not longitudinal, a broad comparison can be made between the performance of sixth grade and eleventh grade students. Sixth graders performed generally less well on the mathematics objectives as a whole than did eleventh graders. More than twice as many eleventh graders (33 percent) mastered all the objectives tested than did sixth graders (13 percent).

   While there is no statistical proof, the fact that higher percentages of eleventh graders demonstrated mastery of essential objectives than sixth graders suggests that some of the low performance of sixth graders may improve by the time they approach completion of high school. However, only a carefully designed longitudinal study, following up the subsequent achievement of these sixth graders, can provide reliable information on this question.

4. Performance of students in the 20 regions followed a pattern similar to the statewide performance of students in both grades. Percentages of students attaining mastery in the regions were in many cases significantly higher or lower than those for the state as a whole. There were a few regions in which student performance was higher than statewide student performance for most of the objectives tested: Regions IX, XV, and XVI.

5. Sixth grade females performed better than males on most of the objectives measured. On seven of the objectives the differences were 5 percentage points or more. The opposite was true at the eleventh grade; here the percentages of males demonstrating mastery were higher than those of females for four of the objectives and equal to females on the remaining objectives. However, both male and female eleventh graders as groups attained percentages of mastery below 90 percent (Level I) on 7 of the 11 objectives tested.

6. The most pronounced differences in performance were found among the three ethnic groups. Higher percentages of "other" students attained mastery on every objective in both grades than did black students. "Other" students performed better than Mexican American students on all but one objective at each grade; Mexican American students, in turn, performed better than black students on all but one objective at each grade. More than four times as many "other" students mastered all the objectives on both tests than did black students.

   Discrepancies among the percentages of mastery attained by black, Mexican American, and "other" students were greatest among those objectives calling for higher order cognitive skills and application of skills to problem solving. For one of these objectives, "solve problems using measures", only 10 percent of black sixth graders demonstrated mastery, as compared with 44 percent of "other" students.

7. On all of the sixth grade objectives and on 10 of the 11 objectives for eleventh graders, lower percentages of students from low income families demonstrated mastery than students from average and upper income families. These differences in performance were particularly large on those objectives requiring higher order cognitive skills and application of skills to the solution of problems.

8. Sixth and eleventh grade students in urban districts performed less well across the board than students in other types of districts. Their mastery levels were 5 percentage points or more below the statewide average on 13 of the 23 objectives measured. Students in suburban districts generally performed higher than students in the other types of districts. Performance of students from other central city districts and non-metropolitan districts ranged between that of urban students and that of students from suburban and rural districts.

9. No consistent pattern of student performance related to per pupil expenditure of state and local funds was found among sixth graders. At the eleventh grade, however, a relationship was found on three of the objectives; smaller percentages of students in districts that expended less than $700 of state and local funds per pupil per year attained mastery than students from the other categories of districts, especially those districts expending $700 to $900 per pupil.

10. Analysis of the data revealed that school districts have generally identified students with special learning characteristics and placed them in appropriate programs, such as gifted and talented, compensatory education, and special education.

11. Relationships were found between student mastery of mathematics objectives and several factors in the students' homes:

- **Reading Materials in the Home** – Students reporting many reading materials in the home performed better on almost all the objectives in both grades than did students from homes with few reading materials. This difference in performance was more pronounced on objectives which required higher order cognitive skills and application of skills and competencies to the solution of problems.

- **Time Spent Watching Television** – A consistent relationship was found in higher performance of sixth and eleventh grade students who reported watching zero to four hours of television the night before they took the test and significantly lower performance of students who watched five hours or more.

- **Homework** – Sixth graders who did five hours or more homework performed best, while those who said they did not complete assigned homework performed most poorly, especially on objectives calling for higher order cognitive skills. Among eleventh graders, those who reported doing more than five hours homework per week performed better than those in other categories of homework completed. Somewhat different from the pattern found among sixth graders, eleventh graders who reported that no homework was assigned performed less well on most objectives than those in the other homework categories. On most of the objectives, higher percentages of students in both grades who completed some homework, even less than five hours per week, demonstrated mastery than did students who did no homework.

- **Language(s) Spoken in the Home** – Students who reported that only English is spoken at home performed better on almost every objective at both sixth and eleventh grades than did students from homes where a language other than English is spoken predominantly. Differences in performance were greatest on those objectives calling for higher order cognitive skills and applications.

- **Educational Levels of Parents and Educational Aspirations of Students** – These factors were studied only among eleventh grade students. A direct relationship was found between higher educational levels of parents and higher student performance on essential mathematics objectives. Students who expressed plans to attend graduate or professional school performed better than those whose educational aspirations were limited to completing high school.

12. A pervasive finding throughout the study was that both sixth and eleventh graders performed less well on those objectives involving higher order cognitive skills applied to solving problems than they did on objectives dealing with less complex mathematical knowledge and skills. This relationship was found consistently among

the results for all students on a statewide basis, among those in the 20 regions of the state, and for all the sub-populations of students for which the data were analyzed. Both of these types of objectives are essential and equally important for students to master.

CONCLUSION

Many students in grades six and eleven in Texas are satisfactorily mastering essential mathematics competencies. At the same time, large proportions of some identifiable groups of students have not achieved these learning objectives as well as some of their peers, or at the 90 percent mastery level desired (Level I). In every one of the groups for which performance was low, however, some students demonstrated mastery of all or most of the objectives tested.

These findings about the achievement of students on essential mathematics objectives should be considered along with the findings from the norm-referenced test in mathematics reported in a companion document, and with other reliable information about student achievement in mathematics, as a basis for identifying the strengths and weaknesses of mathematics instruction in the elementary and secondary schools of Texas. Strengths should be preserved and enhanced. For weaknesses identified, ways should be found to modify instructional programs to improve learning opportunities for those students who are not now achieving well. With the development, implementation, and continuous refinement of effective instructional methods, every student who is willing to work at it should be able to master these essential mathematics objectives by the time high school is completed.

APPENDIX A

ESSENTIAL MATHEMATICS OBJECTIVES

MID-POINT LEVEL

GEOMETRY *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

1. Identify from a group of two-dimensional figures a circle, a quadrilateral, a parallelogram, a square, a rectangle, and a triangle.

NUMERATION AND OPERATIONS WITH WHOLE NUMBERS *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

2. Arrange a group of numbers into ascending order (limit to 4-digit whole numbers).
3. Demonstrate the ability to interpret place value (limit to 5-digit numbers).
4. Read and write 5-digit numerals (verbal or numeric form).
5. State, in writing, the factors of a given number.
6. Add a column of five numbers, where (1) the quantity of digits in the numbers varies but numbers are limited to 4 digits, and (2) regrouping is required.
7. Perform subtraction using 4-digit numbers and regrouping, and relate subtraction to addition.
8. Show the relationship between multiplication and addition, and between multiplication and division.
9. Multiply numbers where regrouping is necessary (limit to 3-digit numbers).

RATIONAL NUMBERS AND OPERATIONS *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

10. Show whether two fractions having different denominators have the same value.
11. Add and subtract fractions having unlike denominators (limit to simple fractions).
12. Demonstrate multiplication of fractions.
13. Translate the verbal statement of a simple fractional part of the whole into a fraction or a decimal number.
14. Perform estimations and solve problems involving addition and subtraction, using whole numbers, simple fractions, and decimals.
15. Perform estimations and solve problems involving multiplication and division, including whole numbers and simple fractions and decimals.

MEASUREMENT *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

16. Use reference units of weight/mass, length, area, volume, temperature, time, and money to estimate and determine measures, both metric and customary.
17. Solve problems using linear, area, volume, weight/mass, money, and temperature measures, both metric and customary.

GRAPHS AND CHARTS *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

18. Read and interpret mathematical information on a map or graph.

HIGH SCHOOL COMPLETION

THE NUMBER SYSTEM *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

1. Demonstrate an understanding of the concept of decimal notation by using it to express numbers as great as ten million and as small as ten thousandths.
2. Demonstrate the ability to interpret place value.
3. Use the addition facts through 10 + 10 in addition and subtraction processes, with computing aids as necessary.
4. Use the multiplication facts through 10 X 10 in multiplication and division processes.
5. Order a set of numbers in ascending or descending order (limit to 6-digit numbers).
6. Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.
7. Estimate answers to simple equation statements, and solve simple equations.
8. Add, subtract, multiply, and divide fractions and decimal numbers to 3 places.
9. Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.

MEASUREMENT *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

10. Demonstrate that to find the measure of an object, a comparison is made.
11. Identify the kind of unit to be used for determining the measure of a particular object.
12. Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.
13. Use tables of weights/mass to convert tons to pounds to ounces, or kilograms to grams, and use tables of volumes to convert gallons to quarts to pints, or liters to milliliters.
14. Use a meter stick or yard stick to measure lengths (dimensions) and, given the formulas, use the measures found to compute areas of surfaces and volumes of solids or containers.
15. Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.

16. Estimate and verify the measure of a property of an object, and compare two similar objects by comparing their measures.
17. Demonstrate knowledge of measuring devices (including metric, direct, and indirect) by explaining their purposes, and use a variety of measuring devices for personal, shop, or leisure time needs.

CONCEPTS OF SIZE, PLACE, AND QUANTITY *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

18. Demonstrate an understanding of the concepts of size and shape by describing the properties of objects in terms of volume, weight/mass, and dimensions.
19. Demonstrate an understanding of the concepts of time, place, distance, and quantity by describing "when," "where," "how far," "how many," and "how much."
20. Use ratios and percent in problem solving situations, such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.
21. Identify units by size or quantity for pricing commodities.
22. Use scales to indicate location and maps to determine distances between two geographic locations.

GRAPHS AND CHARTS *AT A LEVEL APPROPRIATE TO THE AGE-LEVEL EXPECTATION, THE LEARNER CAN:*

23. Demonstrate the understanding of the concept of the number line by using one scale or two scales (graph) to locate a position.
24. Read and interpret mathematical information on a chart or graphs such as circle, bar, line, and picture graphs.

APPENDIX B
PERCENT OF SIXTH GRADE STUDENTS MASTERING ESSENTIAL OBJECTIVES IN MATHEMATICS BY REPORTING GROUPS

		SEX		ETHNICITY			TYPE OF SCH. DIST.					CATEGORY OF SCH. DIST. BY PER PUPIL EXPENDITURE					DISTRICT AREA				
OBJECTIVES	**Statewide Results**	**Male**	**Female**	**Black**	**Mexican-American**	**Other**	**Urban**	**Other Central City**	**Suburban**	**Non-Metropolitan**	**Rural**	**Under $700**	**$700 to $799**	**$800 to $899**	**$900 to $999**	**Over $1,000**	**50 K +**	**10 K - 50 K**	**3 K - 10 K**	**800 - 3 K**	**Less than 800**
Add column of 5 numbers, limited to 5 numbers with regrouping.	85	81	89	77	85	87	83	84	86	85	85	85	85	85	84	84	83	86	84	85	84
Demonstrate multiplication of fractions.	85	83	88	82	80	87	85	86	85	87	81	87	85	86	85	84	85	86	85	86	85
Ability interpret place value.	84	84	84	70	78	90	82	82	86	83	85	82	79	86	85	83	82	84	84	85	84
Read and write 5-digit numerals.	82	80	83	68	74	90	76	81	85	83	83	82	81	82	82	81	76	84	84	83	82
Multiply numbers where regrouping is necessary, limit to 3 digits.	80	75	85	64	78	85	75	78	82	81	84	82	79	80	80	78	74	82	81	80	83
Perform subtraction using 4-digit numbers, with regrouping.	79	76	83	64	77	85	73	79	83	81	80	81	80	79	80	79	72	82	83	81	80
Perform estimations and solve problems involving addition and subtraction of whole numbers, simple fractions, and decimals.	72	70	75	50	66	82	66	70	76	74	73	72	71	73	73	72	66	74	74	75	72
Use reference units of weight/mass, length, area, volume, temperature, time and money to estimate measures.	71	69	72	51	62	80	62	69	76	73	70	66	70	72	72	70	62	74	72	73	71
Divide numbers with remainders, limit to 3 digits.	70	66	74	50	64	79	63	68	73	73	72	73	69	70	71	68	63	71	72	73	72
Perform estimations and solve problems involving multiplication and division, whole numbers, simple fractions, and decimals.	65	63	66	43	58	74	59	64	67	67	64	62	63	66	66	63	59	66	66	67	63
Solve problems using linear area, volume, weight/mass, money, time, and temperature measures.	35	35	35	18	27	44	32	34	39	35	34	32	33	37	33	35	32	36	36	34	36
Add and subtract fractions having unlike denominators.	33	30	36	17	23	42	28	30	34	36	35	32	31	36	30	32	28	33	33	37	34

GRADE SIX MATHEMATICS RESULTS (CONT.)

OBJECTIVES	Gifted & Talented		Spl. Ed. L. Lo		Free Lunch		Title I Regular		Title I Migrant		State Comp. Ed		Comp. Ed. Index	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Add column of 5 numbers, limited to 5 numbers with regrouping.	81	85	63	85	82	86	78	86	76	85	82	85	78	86
Demonstrate multiplication of fractions.	91	85	69	86	83	87	82	86	82	86	83	86	82	87
Ability to interpret place value.	91	84	59	85	74	89	71	87	65	84	70	85	70	88
Read and write 5 digit numerals.	92	82	44	84	71	88	65	86	64	83	69	83	66	87
Multiply numbers where regrouping is necessary, limit to 3 digits.	92	80	45	81	72	84	66	83	77	80	70	81	67	84
Perform subtraction using 4-digit numbers, with regrouping.	86	80	48	81	72	84	68	82	73	80	73	80	69	83
Perform estimations and solve problems involving addition and subtraction of whole numbers, simple fractions, and decimals.	91	72	29	74	59	80	50	78	56	73	56	74	52	79
Use reference units of weight/mass, length, area, volume, temperature, time and money to estimate measures.	86	71	34	72	57	79	49	76	50	72	55	72	51	77
Divide numbers with remainders, limit to 3 digits.	88	70	31	72	57	77	49	75	54	71	54	71	50	76
Perform estimations and solve problems involving multiplication and division, whole numbers, simple fractions, and decimals.	84	64	26	66	51	72	40	70	50	65	47	66	43	72
Solve problems using linear area, volume, weight/mass, money, time, and temperature measures.	54	34	9	36	23	42	19	39	17	36	22	36	18	40
Add and subtract fractions having unlike denominators.	60	32	7	34	20	40	13	37	20	33	18	34	15	38

GRADE SIX MATHEMATICS RESULTS (CONT.)

OBJECTIVES	Newspaper in Home		Magazines in Home		Books in Home		Encyclo in Home		Reading Material in Home				Read Bks for Fun		Time Spent Watching T V				
	Yes	No	Yes	No	Yes	No	Yes	No	None or One	Two	Three	Four	Yes	No	None	1 to 2 Hours	2 to 4 Hours	4 to 5 Hours	5 Hours or More
Add column of 5 numbers, limited to 5 numbers with regrouping	85	84	86	84	86	78	86	84	81	83	84	88	86	81	86	87	84	84	81
Demonstrate multiplication of fractions	86	85	86	84	86	81	87	84	83	84	85	88	86	81	87	86	86	88	83
Ability to interpret place value	86	80	88	80	86	66	86	79	72	79	85	91	85	79	84	86	86	85	78
Read and write 5-digit numerals	85	77	87	77	85	62	86	75	66	76	84	91	84	75	82	84	85	82	72
Multiply numbers where regrouping is necessary, limit to 3 digits	82	75	83	77	82	64	83	74	68	76	80	88	81	75	83	82	82	79	71
Perform subtraction using 4-digit numbers, with regrouping	81	75	83	75	82	65	82	75	70	75	79	87	81	74	81	81	81	81	74
Perform estimations and solve problems involving addition and subtraction of whole numbers, simple fractions, and decimals	76	66	79	65	76	49	76	66	58	63	72	85	75	63	76	76	76	74	60
Use reference units of weight/mass, length, area, volume, temperature, time and money to estimate measures	74	64	78	63	75	47	75	62	51	64	71	84	73	60	70	74	74	71	61
Divide numbers with remainders, limit to 3 digits	74	63	76	65	74	49	74	64	54	62	72	81	72	63	72	73	73	72	60
Perform estimations and solve problems involving multiplication and division, whole numbers, simple fractions, and decimals	68	56	71	58	68	43	69	56	46	56	65	78	67	54	68	69	68	64	53
Solve problems using linear area, volume, weight/mass, money, time, and temperature measures	38	28	42	26	38	16	38	28	21	27	33	48	37	27	37	40	37	34	23
Add and subtract fractions having unlike denominators	37	25	40	24	36	13	37	25	17	24	31	47	35	24	38	36	36	32	20

GRADE SIX MATHEMATICS RESULTS (CONT.)

OBJECTIVES	Homework				Language		
	None Assigned	Don't do	Less 5 hrs./wk.	Over 5 hrs./wk.	English Only	Two Lang.	Non-English
Add column of 5 numbers, limited to 5 numbers with regrouping	83	72	86	86	86	85	84
Demonstrate multiplication of fractions	84	78	87	87	87	85	84
Ability to interpret place value	72	68	86	88	89	83	78
Read and write 5-digit numerals	71	58	85	86	89	81	74
Multiply numbers where regrouping is necessary, limit to 3 digits.	70	59	83	85	85	78	79
Perform subtraction using 4-digit numbers, with regrouping	68	61	82	83	84	79	76
Perform estimations and solve problems involving addition and subtraction of whole numbers, simple fractions, and decimals	59	51	76	80	81	70	65
Use reference units of weight/mass, length, area, volume, temperature, time and money to estimate measures	60	47	75	77	80	70	61
Divide numbers with remainders, limit to 3 digits	57	42	74	77	78	68	64
Perform estimations and solve problems involving multiplication and division, whole numbers, simple fractions, and decimals	51	42	68	72	73	63	56
Solve problems using linear area, volume, weight/mass, money, time, and temperature measures	26	22	37	42	42	35	26
Add and subtract fractions having unlike denominators	26	13	35	39	41	31	22

PERCENT OF ELEVENTH GRADE STUDENTS MASTERING ESSENTIAL OBJECTIVES IN MATHEMATICS BY REPORTING GROUPS

		SEX		ETHNICITY			TYPE OF SCH. DIST.					CATEGORY OF SCH. DIST. BY PER PUPIL EXPENDITURE					DISTRICT ADA				
OBJECTIVES	Statewide Results	Male	Female	Black	Mexican-American	Other	Urban	Other Central City	Suburban	Non-Metropolitan	Rural	Under $700	$700 to $799	$800 to $899	$900 to $999	Over $1,000	50 K +	10 K - 50 K	3 K - 10 K	500 - 3 K	Less than 500
Use the addition facts through 10 + 10 in addition and subtraction processes.	96	95	96	90	95	97	94	95	96	96	96	96	95	95	97	95	94	95	97	96	95
Read and interpret mathematical information on a chart or graph such as circle, bar line, and picture graphs.	93	92	94	83	90	96	91	92	94	93	95	91	94	94	94	91	91	93	93	93	92
Use the multiplication facts through 10 × 10 in multiplication and division processes.	91	90	92	81	88	94	90	91	91	91	92	89	92	92	92	89	90	91	93	90	91
Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.	90	89	91	78	88	93	89	90	91	90	90	89	90	91	91	88	88	91	90	90	89
Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.	84	87	82	66	76	90	80	84	87	84	86	81	85	86	86	82	80	86	86	84	81
Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.	77	77	76	45	67	86	66	75	82	78	78	75	79	77	77	75	66	80	80	76	77
Add, subtract, multiply, and divide decimal numbers to three places.	77	78	77	55	71	84	72	79	79	79	77	76	80	80	77	73	71	79	81	77	74
Use scales to indicate location and maps to determine distances between two geographic locations.	76	79	74	56	71	82	73	73	81	75	76	73	77	77	79	75	73	78	78	74	75
Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.	65	66	63	37	54	73	60	60	67	67	67	59	66	67	66	62	60	65	67	65	65
Use ratios and percent in problem solving situations such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.	65	68	63	39	53	74	66	64	69	67	71	59	68	67	68	64	57	67	69	65	71
Add, subtract, multiply, and divide fractions.	61	60	62	37	48	69	53	60	66	62	59	55	63	63	64	58	52	64	65	61	59

GRADE ELEVEN MATHEMATICS RESULTS (CONT.)

OBJECTIVES	[illegible]		[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]
Use the addition facts through 10 + 10 in addition and subtraction processes.	99	96	93	96
Read and interpret mathematical information on a chart or graph such as circle, bar line, and picture graphs.	96	93	88	94
Use the multiplication facts through 10 x 10 in multiplication and division processes.	96	91	86	92
Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.	99	90	84	91
Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.	96	84	70	87
Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.	93	76	57	80
Add, subtract, multiply, and divide decimal numbers to three places.	94	77	63	80
Use scales to indicate location and maps to determine distances between two geographic locations.	86	76	64	79
Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.	87	64	45	68
Use ratios and percent in problem solving situations such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.	86	65	45	69
Add, subtract, multiply, and divide fractions.	88	60	43	64

GRADE ELEVEN MATHEMATICS RESULTS (CONT.)

OBJECTIVES	Newspaper in Home		Magazines in Home		Books in Home		Encyclo in Home		Reading Material in Home				Read Bks for Fun		Time Spent Watching T V				
	Yes	No	Yes	No	Yes	No	Yes	No	None or One	Two	Three	Four	Yes	No	None	1 to 2 Hours	2 to 4 Hours	4 to 5 Hours	5 Hours or More
Use the addition facts through 10 + 10 in addition and subtraction processes.	96	95	96	93	96	94	96	95	92	95	95	96	96	95	96	96	96	95	96
Read and interpret mathematical information on a chart or graph such as circle, bar line, and picture graphs.	94	87	94	89	94	82	94	88	78	87	93	95	94	90	93	95	93	90	84
Use the multiplication facts through 10 x 10 in multiplication and division processes.	92	87	93	88	92	80	92	86	82	86	89	94	92	90	91	93	91	87	82
Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.	91	86	92	85	91	76	91	86	78	84	89	93	91	88	90	92	89	86	81
Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.	87	76	87	77	86	67	86	78	67	72	83	89	85	84	87	87	83	76	70
Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.	80	65	82	63	78	57	79	67	52	59	72	84	78	74	80	81	75	60	50
Add, subtract, multiply, and divide decimal numbers to three places.	79	71	81	69	79	64	79	73	63	68	75	82	79	77	80	80	76	76	64
Use scales to indicate location and maps to determine distances between two geographic locations.	79	67	80	66	78	54	78	67	56	63	73	82	78	76	78	78	77	70	61
Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.	68	52	71	48	66	38	66	56	43	47	56	74	67	61	68	68	62	54	42
Use ratios and percent in problem solving situations such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.	68	54	70	52	67	47	67	58	47	51	58	73	67	62	68	69	65	53	41
Add, subtract, multiply, and divide fractions.	64	49	66	48	63	59	63	49	37	45	56	69	65	57	66	63	58	56	37

GRADE ELEVEN MATHEMATICS RESULTS (CONT.)

OBJECTIVES	Homework				Language			Parents' Ed. Index				Ed. Aspirations				
	None Assigned	Don't do	Less 5 hrs./wk.	Over 5 hrs./wk.	English Only	Two Lang.	Non-English	Less High School	Some High School	High School Graduate	Above High School	High School Graduate	Voc./tech. etc. School	2-year College	4-year College	Grad. or prof. sch.
Use the addition facts through 10 + 10 in addition and subtraction processes.	93	95	96	96	96	95	95	97	94	95	97	94	94	96	97	97
Read and interpret mathematical information on a chart or graph such as circle, bar line, and picture graphs.	86	90	94	95	95	92	88	87	91	92	96	86	95	94	96	96
Use the multiplication facts through 10 x 10 in multiplication and division processes.	82	89	92	94	93	90	86	87	89	90	94	84	89	93	95	94
Count various combinations of paper money and coins up to $100, and make change from $100 for purchases under that amount.	85	85	91	93	91	90	86	86	88	89	93	83	88	90	94	94
Add, subtract, multiply, and divide using measures, and solve simple problems involving measures.	76	83	85	89	87	84	72	77	81	82	91	72	83	83	91	92
Solve a simple problem involving the processes of addition, subtraction, multiplication, and/or division.	60	73	77	84	81	86	63	66	69	72	87	60	76	73	86	90
Add, subtract, multiply, and divide decimal numbers to three places.	66	74	79	83	81	76	71	72	71	73	85	64	74	73	86	89
Use scales to indicate location and maps to determine distances between two geographic locations.	65	80	77	80	78	76	69	68	66	76	84	63	76	75	84	85
Use concepts and computational skills in keeping personal records such as banking and savings accounts, information for insurance and income tax, records of interest, and similar consumer affairs such as planning for earning a living and solving problems of housing.	49	64	66	69	69	63	51	55	58	58	75	48	61	63	73	78
Use ratios and percent in problem solving situations such as making comparisons, interpreting charts, enlarging and reducing sizes, and managing personal finances.	51	64	66	72	69	64	50	56	54	60	77	49	61	62	73	85
Add, subtract, multiply, and divide fractions.	37	57	62	70	65	61	42	46	49	56	73	42	54	54	73	80

APPENDIX C

TEXAS ASSESSMENT PROJECT
PUPIL INFORMATION

(To be completed by the school)

Information about pupil number:

Grade

- ○ 3
- ○ 4
- ○ 6
- ○ 7
- ○ 8
- ○ 11
- ○ 12

Sex

- ○ M
- ○ F

Birthdate

Month	Year
⓪⑧	⓪⑧
①①	①①
②	②②
③	③③
④	④④
⑤	⑤⑤
⑥	⑥⑥
⑦	⑦⑦
⑧	⑧⑧
⑨	⑨⑨

Ethnicity

- ○ Black
- ○ Mexican-American
- ○ Other

1. Is the pupil eligible for free or reduced price meals? (This includes any program under the National School Lunch and Child Nutrition Program.)

	YES	NO
	○	○

2. Mark YES or NO to indicate whether or not the pupil **participates** in each of the programs listed.

	YES	NO
Gifted and Talented	○	○
Special Education:		
L/LD (5251)	○	○
ED (4647)	○	○
SH (4545)	○	○
MR (4444)	○	○
Other Special Ed.	○	○

3. Complete this section for pupils in GRADES 3 THRU 8 ONLY.

Mark YES or NO to indicate whether or not the pupil **participates** in each of the programs listed.

	YES	NO
Title I (Regular)	○	○
Title I (Migrant)	○	○
State Compensatory Ed.	○	○

FOR RTI USE ONLY

	YES	NO
Mark YES or NO to indicate whether or not this form was completed.	○	○

TAILSHEET INFORMATION
(Completed by the Student)

1. Does your family get a newspaper regularly?
   - O Yes
   - O No
   - O I don't know.
   - O I prefer not to answer.

2. Does your family get any magazines regularly?
   - O Yes
   - O No
   - O I don't know.
   - O I prefer not to answer.

3. Are there more than 25 books in your home?
   - O Yes
   - O No
   - O I don't know.
   - O I prefer not to answer.

4. Is there an encyclopedia in your home?
   - O Yes
   - O No
   - O I don't know.
   - O I prefer not to answer.

5. Do you read books for fun, even when they are not for school?
   - O Yes
   - O No
   - O I prefer not to answer.

6. How much television did you watch last night?
   - O None
   - O One hour or less.
   - O 1 to 2 hours
   - O 2 to 3 hours
   - O 3 to 4 hours
   - O 4 to 5 hours
   - O 5 to 6 hours
   - O Six hours or more.
   - O I prefer not to answer.

7. Approximately what is the average amount of time you spend on homework a week?
   - O No homework is ever assigned.
   - O I have homework, but I don't do it.
   - O Less than 5 hours a week.
   - O Between 5 and 10 hours a week.
   - O More than 10 hours a week.
   - O I prefer not to answer.

8. Is English the language spoken most often in your home?
   - O Yes
   - O No
   - O I prefer not to answer.

9. Is a language other than English spoken in your home?
   - O Often
   - O Sometimes
   - O Never
   - O I prefer not to answer.

* 10. How much school did your father complete? (FILL IN THE ONE OVAL which best shows how much school your father completed.)
   - O Did not complete the 8th grade.
   - O Completed the 8th grade, but did not go to high school.
   - O Went to high school, but did not graduate from high school.
   - O Graduated from high school.
   - O Some education after graduation from high school.
   - O I don't know.
   - O I prefer not to answer.

* 11. How much school did your mother complete? (FILL IN THE ONE OVAL which best shows how much school your mother completed.)
   - O Did not complete the 8th grade.
   - O Completed the 8th grade, but did not go to high school.
   - O Went to high school, but did not graduate from high school.
   - O Graduated from high school.
   - O Some education after graduation from high school.
   - O I don't know.
   - O I prefer not to answer.

* 12. How much schooling do you think you will get? Do you expect to:
   - O Graduate from high school.
   - O Go to vocational, technical, trade, or business school.
   - O Go to a two-year or junior college.
   - O Go to a four-year college or university.
   - O Go to a graduate or professional school after college.

*These questions were included in the test booklets for Grade 11 and Age 17 student samples.

APPENDIX D
DEFINITIONS OF
TAP REPORTING GROUPS

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	ESC REGIONS – 20
REGION I ⋮ REGION XX	Geographic regions served by education service centers. *SOURCE:* Texas Education Agency (TEA) Management Information Center (MIC) data files.
	DISTRICT TYPE – 5
URBAN	The central cities of the state's seven largest Standard Metropolitan Statistical Areas as defined by the U.S. Bureau of Census.
OTHER CENTRAL CITY	The central cities in the state's remaining Standard Metropolitan Statistical Areas as defined by the U.S. Bureau of Census.
SUBURBAN	An outlying district adjacent to a Central City.
NON-METROPOLITAN	A district not defined as one of the other four types.
RURAL	A district of less than 1,000 ADA having no central town. *SOURCE:* TEA MIC data files.
	DISTRICT SIZE – 5
ADA/50K+ ADA/10K-50K ADA/3K-10K ADA/500-3K ADA/LESS 500	Range of pupils in average daily attendance (ADA), e.g., "ADA/50K+" means "greater than 49,999 ADA." *SOURCE:* TEA MIC data files.

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	PER PUPIL EXPENDITURE – 5
PPE/$1-$700 PPE/$700-$799 PPE/$800-$899 PPE/$900-$999 PPE/$1000+	Amount of money the district budgeted per pupil in 1976-77. (Exclusive of Capital Outlay or Federal Funds.) *SOURCE:* TEA MIC data files.
	ETHNICITY – 3
BLACK MEXICAN AMERICAN OTHER	Ethnic designation filled in by school personnel for each pupil. *SOURCE:* Pupil Information form (PI).
	SEX – 2
MALE FEMALE	Sex designation filled in by the school personnel for each pupil. *SOURCE:* PI
	GIFTED/TALENTED – 2
GIFTED/TALENTED-YES GIFTED/TALENTED-NO	YES if the pupil "participates in a planned program of differentiated instruction for students identified as gifted and/or talented." Otherwise NO. *SOURCE:* PI
	LANGUAGE/LEARNING DISABILITY – 2
L/L DISABILITY-YES L/L DISABILITY-NO	YES if the school district identified the pupil as having a language and/or learning disability. Otherwise NO. *SOURCE:* PI

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	FREE LUNCH ELIGIBLE – 2
FREE LUNCH-YES FREE LUNCH-NO	YES if the school district identified the pupil as "eligible for free or reduced price meals" based on family income and number of children in the family. Otherwise NO. *SOURCE:* PI
	TITLE I PARTICIPATION – 2
TITLE I REGULAR-YES TITLE I REGULAR-NO	YES if the school district indicated that the pupil participates in a Title I (Regular) program of federally-funded compensatory education programs and services for educationally disadvantaged pupils. Otherwise NO. *SOURCE:* PI
	MIGRANT PROGRAM PARTICIPATION – 2
TITLE I MIGRANT-YES TITLE I MIGRANT-NO	YES if the school district indicated that the pupil participates in a program to meet the unique needs of children of migrant workers and fishermen. Otherwise NO. *SOURCE:* PI
	STATE COMPENSATORY PARTICIPATION – 2
STATE COMP. ED-YES STATE COMP. ED-NO	YES if the school district indicated that the pupil participates in a State Compensatory Education program for educationally disadvantaged children. Otherwise NO. *SOURCE:* PI

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	PARTICIPATION IN SUPPLEMENTAL PROGRAMS – 2
TITLE I INDEX-YES TITLE I INDEX-NO	The pupil participates in at least one of the following: Title I (Regular), Title I (Migrant), and/or State Compensatory Education program(s). *SOURCE:* PI
	FAMILY NEWSPAPER – 2
NEWSPAPER-YES NEWSPAPER-NO	Pupil response to "Does your family get a newspaper regularly?" *SOURCE*: Tailsheet (TS), an information sheet filled out by each pupil after completing one of the tests.
	FAMILY MAGAZINE – 2
MAGAZINE-YES MAGAZINE-NO	Pupil response to "Does your family get any magazines regularly?" *SOURCE:* TS
	BOOKS IN THE HOME – 2
BOOKS-YES BOOKS-NO	Pupil response to "Are there more than 25 books in your home?" *SOURCE:* TS
	ENCYCLOPEDIAS IN THE HOME – 2
ENCYCLOPEDIA-YES ENCYCLOPEDIA-NO	Pupil response to "Is there an encyclopedia in your home?" *SOURCE:* TS

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	READING MATERIALS IN THE HOME – 4
READ MATERIALS-0-1	Pupil responded YES to **zero or one** of the above four questions.
READ MATERIALS-2	Pupil responded YES to any **two** of the above four questions.
READ MATERIALS-3	Pupil responded YES to any **three** of the above four questions.
READ MATERIALS-4	Pupil responded YES to all **four** of the above four questions.
	SOURCE: TS
	READING FOR FUN – 2
READ BOOKS-YES READ BOOKS-NO	Pupil response to "Do you read books for fun, even when they are not for school?"
	SOURCE: TS
	TV WATCHING TIME – 5
TV-NONE TV-1-2 HOURS TV-2-4 HOURS TV-4-5 HOURS TV-OVER 5 HOURS	Amount of time the pupil indicated watching TV the previous night. *SOURCE:* TS
	HOMEWORK TIME PER WEEK – 4
	The pupil indicated the following:
HMWK-NONE ASSIGNED	No homework is ever assigned.

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	– Homework Time Per Week (Continued) –
HMWK-DON'T DO	The pupil has homework, but doesn't do it.
HMWK-LESS 5 HOURS/WK	The pupil does less than 5 hours homework per week.
HMWK-OVER 5 HOURS/WK	The pupil does more than 5 hours homework per week.
	SOURCE: TS
	HOME LANGUAGE – 3
LANGUAGE USED-ENGLISH	The pupil indicated that **only English** is used in the home.
LANGUAGE USED-MIXTURE	English is the most often spoken in the home, but another language is also spoken.
LANGUAGE USED-NON-ENG.	English is not the language most often spoken in the home.
	SOURCE: TS
	PARENTS' EDUCATION – 4 **(Grade 11, Age 17 Only)**
PARENT NO H.S.	Neither parent went to high school.
PARENT SOME H.S.	At least one parent went to high school but neither graduated.
PARENT H.S. GRAD.	At least one parent graduated from high school.
PARENT POST H.S.	At least one parent had some post high school education.
	SOURCE: TS

GROUP LABEL	CATEGORY TITLE – NUMBER OF GROUPS Group Definition – *SOURCE* of Data
	PUPIL'S EDUCATIONAL EXPECTATIONS – 5 **(Grade 11, Age 17 Only)** Pupil expects to:
EXP. GRAD. H.S.	Graduate from high school.
EXP. VOC, TECH, TRADE	Go to a vocational, technical, trade, or business school.
EXP. JR. COLLEGE	Go to a two-year or junior college.
EXP. FOUR-YR COLLEGE	Go to a four-year college or university.
EXP. GR. OR PROF. SCHOOL	Go to a graduate or professional school after college.

SOURCE: TS